CLAIMS

1. A system for measuring thermal distributions of an electronic device during operation, comprising:

a duct adapted to be coupled with an electronic device;

a coolant flowing through the duct so as to cool the electronic device; and

a photon detector located adjacent to the duct for detecting photons.

2. The system of claim 1, wherein the duct and the coolant are at least partially transparent to photons with wavelengths between about 0.1 micron to 20 microns.

3. The system of claim 1, further comprising:

a processor coupled to the photon detector for generating a thermal distribution of the electronic device based on information received from the photon detector.

4. The system of claim 1, wherein the coolant comprises any one of water and a cold gas.

5. The system of claim 1, wherein the coolant comprises at least one of any alkanes and perfluoroalkanes.

6. The system of claim 1, wherein the coolant is a non-polar liquid comprising any one of perflouro-octane, perfluro-hexane, octane, hexane and carbon tetrachloride .

7. The system of claim 1, wherein the electronic device forms one side of the duct.

8. The system of claim 1, wherein the duct comprises any one of polished silicon, quartz, sapphire, glass and diamond.

9. The system of claim 1, wherein the photon detector captures thermal information from the electronic device during operation of the electronic device, wherein the electronic device is operating under conditions for which the electronic device is designed.

10. The system of claim 1, wherein the photon detector is an infrared camera.

11. The system of claim 1, wherein the photon detector detects photons reflected from the electronic device.

12. The system of claim 1, wherein the photon-detector detects photons comprising the luminescence from the electronic device.

13. A method for measuring thermal distributions of an electronic device during operation, the method comprising:

detecting, by a photon-detector, photons from an electronic device during operation of the electronic device, the photon detector located adjacent to a duct that is adjacent to the electronic device, wherein a coolant flows through the duct so as to cool the electronic device.

14. The method of claim 13, wherein the duct and the coolant are at least partially transparent to photons with wavelengths between about 0.1 micron to 20 microns.

15. The method of claim 13, further comprising:

generating a thermal distribution of the electronic device based on information received from the photon detector.

16. The method of claim 13, wherein the coolant comprises any one of water and a cold gas.

17. The method of claim 13, wherein the coolant comprises at least one of any alkanes and perfluoroalkanes.

18. The method of claim 13, wherein the coolant is a non-polar liquid comprising any one of perflouro-octane, perfluoro-hexane, octane, hexane, and carbon tetrachloride.

19. The method of claim 13, wherein the electronic device forms one side of the duct.

20. The method of claim 13, wherein the duct comprises any one of polished silicon, quartz, sapphire, glass and diamond.

21. The method of claim 13, wherein the photon detector captures thermal information from the electronic device during operation of the electronic device, wherein the electronic device is operating under conditions for which the electronic device is designed.

22. The method of claim 13, wherein photon detector is an infrared camera.

23. The method of claim 13, wherein photon detector detects photons reflected from the electronic device.

24. An apparatus for allowing thermal measurements, comprising:

a duct adapted to be coupled with an electronic device; and

a coolant flowing through the duct so as to cool the electronic device, wherein the duct and the coolant are at least partially transparent to photons with wavelengths between about 0.1 micron to 20 microns.

25. The apparatus of claim 24, wherein the duct allows for the capture of thermal information from the electronic device during operation of the electronic device, wherein the electronic device is operating under conditions for which the electronic device is designed.

26. A system for measuring thermal distributions of an electronic device during operation, comprising:

an electronic device; and

a duct adapted to be coupled with the electronic device, wherein the duct is at least partially transparent to photons so as to allow thermal measurement of the electronic device from an exterior of the duct.

27. The system of claim 26, wherein the duct comprises any one of:

polished silicon;

quartz;

sapphire; and

diamond.

28. The system of claim 26, further comprising:

a coolant that flows through the duct so as to cool the electronic device.